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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/408,921	09/30/99	RICCI A	LAM1P118

022434
BEYER WEAVER & THOMAS LLP
P O BOX 130
MOUNTAIN VIEW CA 94042-0130

IM22/0627

EXAMINER	
POWELL, A	
ART UNIT	**PAPER NUMBER**
1763	5

DATE MAILED: 06/27/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

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Office Action Summary

Application No.	Applicant(s)
09/408,921	Ricci, et al
Examiner	**Group Art Unit**
Powell, A.	1763

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-37* is/are pending in the application.

Of the above, claim(s) *19-37* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-18* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-18, are drawn to apparatus, classified in class 156, subclass 345.

II. Claims 19-34, are drawn to method, classified in class 428, subclass 64.1.

III. Claims 35-37, are drawn to process for the use thereof, classified in class 432, subclass 1+.

2. Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation and different functions.

3. Inventions II, III and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus claimed can be used to practice another and materially different process such as vapor deposition.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with W. Plut on 6/13/00 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-37 are withdrawn from further consideration by the examiner, 37 CAR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CAR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CAR 1.48(b) and by the fee required under 37 CAR 1.17(I).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The term " consistent reactivity" in claim 1 and 12 is an relative term which renders the claim indefinite. The term "constant reactivity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

10. The term " always" in claim 5 is a relative term which renders the claim indefinite. The term "always" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

12. Claims 1, 9, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Foster et al (5,273,588).

As to claims 1 and 11-13, Foster et al disclose a semiconductor wafer processing apparatus having a showerhead 35 (gas distribution plate) with a uniform pattern of holes 36 therethrough to direct a gas mixture onto a wafer. (Fig. 4; abstract; col. 10, lines 9-25) The showerhead may be made of machinable ceramic material and has a highly polished lower surface to retard the absorption of radiant heat from the higher reaction temperature from the area of a

wafer being processed within the chamber 25. Components of semiconductor apparatuses inherently are resistive to the process chemistry used.

13. Claim 1 and 9-13 is rejected under 35 U.S.C. 102(e) as being anticipated by Zhao et al (U.S. Pat. No. 5,994,678).

Zhao et al disclose a ceramic material (e.g. AlN) for a semiconductor processing chamber for high temperatures above 400°C and corrosive plasma environments. (col. 18, lines 57-58). The shape of the ceramic component can be modified by grinding and drilling. (Col. 22, lines 25-30). Components of semiconductor apparatuses inherently are resistive to the process chemistry used.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al (5,273,588) in view of Zhao et al (U.S.. Pat. No. 5,994,678).

Foster et al and Zhao et al are discussed above.

Foster et al and Zhao et al do not disclose a semiconductor etch machine.

It would have been obvious to a person of ordinary skill in the art that the semiconductor wafer processing apparatus of Foster et al or Zhao et al can be used as a semiconductor etch machine by the application of the process chemistry.

The motivation for doing so would have been to etch semiconductor wafer within the processing chamber of the apparatus.

Therefore, it would have been obvious to use the semiconductor processing apparatus of Foster et al or Zhao et al for a semiconductor etch machine.

16. Claims 2-4, 6-8 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al in view of Goldstein et al (U.S. Pat. No. 5,494,439).

Foster et al do not disclose expressly defect particles or a temperature of 1500°C to 1600°C for pretreating the gas distribution plate.

Goldstein et al disclose the fabrication of a ceramic components for use in an IC manufacturing process. (col. 3, lines 1-5).

As to claims 2-4 and 6-8, Goldstein discloses an ultraclean material reduces the contamination (defect particles) on wafers (abstract; col. 1, lines 40-49).

As to claims 15-18, the ceramic component is heated to a temperature above 600°C for a period of 12-16 hours to remove impurities from the ceramic component. (Fig. 3; Col. 6, lines 34-45).

It would have been obvious to combine the fabrication of a ceramic component of Goldstein et al with the gas distribution plate of Foster et al.

The motivation for doing so would have been to remove impurities from the component so that semiconductor wafers would not be contaminated when the component is used within the processing chamber of a semiconductor apparatus.

Therefore, it would have been obvious to combine Foster et al with Goldstein et al to obtain the invention as specified in claims 2-4, 6-8 and 15-18.

17. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al in view of Goldstein et al.

Foster et al and Goldstein et al are discussed above.

Foster et al and Goldstein et al does not disclose expressly 0.1 defect particles per square centimeter.

It would have been obvious to reduce the defect particles of the semiconductor wafer by using ultraclean components within the processing chamber.

The amount of contamination deposited on the semiconductor wafer is obvious because it result effective variable *In re Boesch*, 205 USPQ 215 (CCPA 1980). The inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims *In re Young*, 25 USPQ 69 (CCPA 1935).

Therefore, it would have been obvious to use an ultraclean component to reduce the particle defects of the semiconductor wafer.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alva C. Powell whose telephone number is (703) 305-0541.

The fax phone number for the organization where this application or proceeding is assigned is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Alva C. Powell

June 26, 2000

JEFFRIE R LUND
Primary Examiner
AU 1763